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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,579	09/20/2006	Eiichi Kaji	2006_1387A	1456
513 7590 03/06/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER LU, C CAIXIA	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 03/06/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/593,579

**Applicant(s)**

KAJI ET AL.

**Examiner**

Caixia Lu

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 4-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)  
Paper No(s)/Mail Date 9/20/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-3, in the reply filed on January 7, 2008 is acknowledged.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(i) The terminology of "polymethylaluminoxane preparation" throughout the claims and specification is not an art recognized term. Should the term be replaced with "polymethylaluminoxane composition"?

(ii) Disclosing necessary limitation in a pair of parentheses should be avoided because the limitation following a term in a pair of parentheses is considered optional. Since the limitation disclosed in the parentheses in section (i) of claim 1 is necessary, the use of parentheses should be eliminated.

(iii) In view of the working examples disclosed in the specification, the viscosities measured are for the polymethylaluminoxane compositions containing polymethylaluminoxane, trimethylaluminum, and toluene. The amounts of those three components all affect the viscosities of the polymethylaluminoxane composition, e.g., the viscosity of the composition increases as the molecular weight and/or the amount of

polymethylaluminoxane increases, but decreases dramatically as the amount of toluene increases. Therefore, two compositions with the same viscosities can have polymethylaluminoxane with very different molecular weights. Without specifying the relative amounts of the three components, the viscosity of the polymethylaluminoxane composition is not meaningful.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as obvious over Smith et al. (US 5,831,109).

Smith's Examples 2 and 4 demonstrate the preparation of the polymethylaluminoxane (PMAO) composition free of trimethylaluminum (TMAL) by reacting TMAL and benzoic acid in toluene with catalytic amount of polyaluminoxane (PMAO). It is noted that Smith does not expressly disclose the viscosity of the PMAO prepared from the Examples. However, in Smith's PMAO preparation process, the reaction between TMAL and benzoic acid is quantitative, therefore, the molecular weight of PMAO, which determines the viscosity, can be controlled by varying the ratio of TMAL to benzoic acid. As the TMAL/benzoic acid decreases, the molecular weight of PMAO increases.

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It is also noted that Smith does not expressly use toluic acid; however, Smith does expressly disclose that non-limited carboxylic acid can be used in the PMAO preparation process. It would be obvious to use any carboxylic acid such as toluic acid in the PMAO preparation process since toluic acid is inexpensively commercially available and have very good solubility in toluene.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Smith's teaching to prepare a PMAO composition free of TML with various viscosities since such is within the scope of Smith's teaching and in the absence of any showing criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.

/Caixia Lu/  
Caixia Lu, Ph. D.  
Primary Examiner